

**Appendix G**  
**Best Management Practices for the California Clapper Rail**

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## **Best Management Practices for the Avoidance and Minimization of Indirect Impacts from Spartina Control Program Activities on the Endangered California Clapper Rail (*Rallus longirostris*)**

### **1. Introduction: scope of minimization and avoidance measures.**

Spartina Control Program activities in tidal marshes of the San Francisco Estuary involve both direct and indirect impacts to habitats, individuals, and populations of the California clapper rail, a federally and state-listed endangered species. Some direct impacts to clapper rail habitats, individuals, and populations may be unavoidable where extensive stands of Atlantic smooth cordgrass (*Spartina alterniflora*) and its hybrids have become opportunistically colonized by clapper rails. Unavoidable direct impacts, subject to off-site compensatory mitigation, are discussed in Chapter 3 (Biological Resources). Many direct and indirect impacts of Spartina Control Program activities on clapper rails, however, can be minimized or avoided by altering the location or timing of control activities subsequent to early detection of clapper rail presence in project areas.

The following “best management practices” summarize proposed mitigation measures for clapper rails affected by Spartina Control Program activities (control activities). They are based on early detection, monitoring, and adaptive project management to link monitoring to practices of field crews in the vicinity of treatment sites. Treatment sites are also proposed to be monitored following control activities to provide relevant information about changes in local clapper rail distribution and abundance for potential re-treatment activities, and to assess the effectiveness of avoidance and minimization measures.

### **2. Regulatory Use of Best Management Practices.**

The “best management practices” outlined below represent a general, programmatic set of procedures proposed to mitigate indirect impacts of invasive cordgrass activities on clapper rails. They describe the full range of standardized measures proposed for many possible contingencies associated with individual projects and sites. Because site conditions and clapper rail populations change annually and seasonally, the specific combination of practices applied to individual project sites may vary. The selection of mitigation measures (best management practices) required for individual projects may also vary according to site-specific and time-specific circumstances. These would be determined in consultation with the U.S. Fish and Wildlife Service, Endangered Species Program, Sacramento Fish and Wildlife Office. The Service would determine the final “take minimization” (mitigation) requirements for activities affecting California clapper rails, through terms and conditions of the Service’s biological opinion (Section 7, Endangered Species Act).

It is likely that the mechanism for consultation, and site-specific reviews and approvals, would be similar to the conventions for “programmatic biological opinions” applied to regional federal permits or regional programs. This convention involves (a) a comprehensive evaluation of the overall proposal or program; (b) general terms and conditions to minimize ‘take’ of

endangered species; (c) annual reporting to the Service of proposed site-specific projects; (d) local project-specific review and written approval by the U.S. Fish and Wildlife Service, with specific conditions of annual activities. The review and approval procedures are typically enforced by terms and conditions set forth by the Service's biological opinion. Projects which exceed the amount or kind of 'take' treated in the biological opinion would require re-initiation of consultation. This procedure allows for typical projects to be reviewed expediently and approved with refined conditions, but also allows the Service to withhold approvals for exceptional actions with impacts and 'take' beyond what was prescribed in the programmatic biological opinion.

### 3. Survey Protocols.

The protocols (standard practices) for detecting the presence of California clapper rails are generally determined by the U.S. Fish and Wildlife Service, and are enforced through terms and conditions of regulatory instruments, such as incidental take authorizations, and recovery permits issued to qualified biologists with expertise in clapper rail field biology. These determine the specific methods and conditions in which surveys are authorized. Survey protocols are refined and updated according to the best available and most recent data from regional field surveys, and scientific standards. Clapper rail surveys are proposed for an entire project "action area," including the defined site of treatment activities, and any areas influenced by them (including crew and equipment access areas, staging areas, areas of potential substantial visual or auditory influence to the behavior of clapper rails).

Survey methods are subject to the discretion of the U.S. Fish and Wildlife Service, based on the local environmental setting. The call detection (aural or listening) survey is a standard survey technique that minimally disturbs clapper rails. Passive call detection surveys are used for initial detection. Passive call surveys, based on listening only, are performed on calm, nearly windless days in the winter-spring season (active mating or territory defense period) at times when clapper rails are likely to call and be detected. Conditions that limit call detection surveys include tidal stage and background noise interference. If repeated passive call surveys fail to detect rails, active surveys may be required to detect presence of clapper rails. Active surveys are based on eliciting call responses from clapper rails by broadcasting audiotapes of clapper rail calls. Active surveys are generally needed to detect clapper rail calls outside the breeding season, or during molting, or other circumstances in which rails are least likely to vocalize spontaneously. Active surveys provide more precise information on rail numbers and movements than passive surveys. Depending on the type and detail of survey information needed to minimize impacts to a particular project site, one or both call survey types may be used, based on recommendations of clapper rail expert biologists.

Visual survey methods include searching for tracks in mud near cordgrass, nest searches, and winter high tide surveys. Nest searches are seldom authorized because risks of disturbance may outweigh the benefits of detection. Track surveys in conditions that are less likely to disturb habitat are also possible techniques for some sites. Winter high tide surveys from levees or airboats in sloughs or bay edges are used to census rails in some circumstances when quantitative data on clapper rail population size is needed. Winter or early summer high tide surveys are usually limited to larger regional clapper rail survey or census efforts, and are not always site-specific.

Regional surveys of clapper rails, performed by qualified and authorized experts, are prepared in coordination with the *Spartina* Control Program to produce annually updated regional maps

of changes in the known distribution of California clapper rails, at least in segments of the subspecies' overall range. Regional surveys do not always provide site-specific information about the presence or absence of clapper rails, but they can be modified to provide site-specific information pertinent to proposed cordgrass treatment sites. Clapper rail distributions in the Estuary, however, change under the influence of habitat changes (e.g. expansion of cordgrass habitats, either native or non-native, conditions of high tide escape habitat) or predation pressures, so regional maps must be updated annually for accuracy.

If a project site includes suitable clapper rail habitat, and lies within a cluster of recent (ca. 5- to 10-year) recorded locations of clapper rails, clapper rails are presumed to be potentially present. In this case, the "action area" (project site and areas which may be affected by its activities) must be surveyed for clapper rails by a qualified biologist during the same breeding season in which activities are proposed. The survey zone would presumably include all marsh within approximately 700 feet of the proposed project site boundaries. Site-specific surveys of clapper rail home ranges can provide additional useful information about patterns of clapper rail travel, potential nest sites, and preferred sensitive locations of high tide escape cover.

If a project site appears to lack suitable clapper rail habitat, and is separated from localities of recent recorded clapper rail populations by extensive areas of adverse habitat conditions (e.g. industrial, port, or other non-marsh shorelines), site-specific surveys by qualified biologists may be required at the discretion of the U.S. Fish and Wildlife Service, especially if there may be new vagrant or resident clapper rails occupying the area. At a minimum, visual searches for clapper rail tracks would be performed at cordgrass-invaded sites judged to be unlikely to support clapper rails. If more elaborate site-specific surveys are not required, Control Program crew supervisors will be trained in endangered species identification (visual, aural detection), and basic identification of tidal marsh vegetation. For exceptional cases of new rail movements into marginal, unoccupied habitat, trained field supervisors will also be capable of on-site identification and avoidance measures. Erratic movement of clapper rails (movements outside of typical primary habitats or established home ranges) tends to occur from mid-August through November, coinciding with the principal window for treatment (non-breeding season).

The interpretation of field survey results regarding "absence" or "presence" of clapper rails is subject to the discretion of the U.S. Fish and Wildlife Service.

#### **4. Potential seasonal windows for control activities in clapper rail habitats.**

If clapper rails are determined to be absent from a proposed project "action area," with concurrence of the U.S. Fish and Wildlife Service, control activities may be performed at any feasible time of year. Typical examples of likely site conditions associated with absence of clapper rails could include isolated, discrete, young, remote mudflat colonies of smooth cordgrass, and outlier colonies along urban shorelines with little or no adjacent tidal marsh.

If clapper rails are determined to be present at a proposed project "action area," most or all control activities may be restricted to the non-breeding season of the clapper rail, as determined by the U.S. Fish and Wildlife Service. The non-breeding season (lack of nesting, brooding) most recently has been interpreted as a relatively short period between September and February. The restriction of control activities to the non-breeding season may depend on local survey information on the density, local distribution, and behavior of clapper rails. If a project "action area" is marginal to the movements (home range) of a clapper rail individual, particularly a juvenile or non-breeding adult, some control activities may be feasible during the

off-peak breeding season, if authorized by the U.S. Fish and Wildlife Service. If a project “action area” coincides or overlaps significantly with the home ranges of a breeding adult clapper rail, an active nest, or young brood, restriction of control activities to the non-breeding season is presumed.

### **5. On-site field biology supervision and training.**

In addition to protocols for clapper rail surveys and seasonal timing of cordgrass control activities, activities of field crews performing control activities will require variable degrees of on-site field biologist supervision, depending on the degree of residual risk of clapper rail impacts.

The most sensitive case for field biological supervision is crew operation in occupied clapper rail habitat, even outside the breeding season. All work performed in known, occupied clapper rail habitats will at all times require on-site qualified field biologists with expertise in clapper rails. Supervising biologists will provide immediate instructions and guidance to field crews so that operations will have no inadvertent or excessive impacts to clapper rail habitats or clapper rail individuals. All field technicians and crew supervisors operating in such conditions will also be trained in basic field biology of clapper rails, including visual identification, call detection, and basic salt marsh vegetation and habitat types.

If crews operate in areas determined to be probable unoccupied habitat or non-habitat, field biologist supervision may be required, in addition to crew training, as with known occupied clapper rail habitat. This will depend on the degree of risk determined by supervisory clapper rail experts, in consultation with the U.S. Fish and Wildlife Service. At sites where clapper rails have been determined to be absent, and suitable habitat is either lacking or marginal, crew supervisors and field technicians will be trained in basic field biology of clapper rails, including introduction to visual identification, call detection, and basic salt marsh vegetation and habitat types.

### **6. Pre-project implementation protocols.**

Where cordgrass control activities are to be performed in confirmed or potentially occupied clapper rail habitats, site-specific project plans will be adapted to updated field conditions and most recent field survey information regarding clapper rails before field equipment and crews are mobilized to the project site. Access routes for equipment and field crews will be staked out and described. Clearly visible flags, either set or approved by field biologists with expertise in clapper rail biology, will mark restricted areas and buffer zones for activities. Flags will be removed whenever operations are inactive to avoid providing scent-cues for foraging predators, especially red fox. Configuration of flagged restricted areas will be based on field survey data, and interpretation of rail behavior and habitat structure. Written site-specific precautions for field crews will be prepared by, or in consultation with, clapper rail expert biologists. These precautions will be distributed and explained to field crews by on-site biological supervisors.

If clapper rails or clapper rail nests are detected within any planned treated areas, control activities will be suspended. Locations of clapper rails, and their nests or brood nests, will immediately be recorded by GPS data, and photographed. Data on clapper rail or nest locations will be reported within 24 hours to the supervisory field biologist and the U.S. Fish and Wildlife Service, Endangered Species Program. Similarly, if clapper rails or nests are detected during operations, control activities will be immediately suspended, and information

will be reported as described. Treatment activities may resume with conditional authorization from the U.S. Fish and Wildlife Service, in coordination with the clapper rail expert biologist.

### **7. Post-control monitoring and reporting.**

Post-control monitoring applies to project sites within, or marginal to, occupied clapper rail habitat, or large, well-established stands of potential cordgrass habitat. It does not apply to isolated, young, discrete patches of non-native cordgrass surrounded by non-marsh habitat (mudflat or urban developed shorelines). The classification of cordgrass stands for purposes of post-control monitoring will be proposed by the clapper rail expert biologist consulted for site-specific project design, in consultation with the U.S. Fish and Wildlife Service.

Treated areas where cordgrass dieback is incomplete may require repeat or follow-up control measures. If initial treatments leave enough residual cordgrass to support potential recolonization by clapper rails before subsequent treatment, and the date of subsequent treatment is near the beginning of the breeding season, options may include: (1) delay all subsequent treatment to the end of the next growing season (allowing substantial regeneration of invasive cordgrass and possible recolonization by clapper rails); or (2) re-survey for clapper rails at least two weeks prior to potential subsequent treatment to confirm lack of clapper rail recolonization, and perform follow-up treatments (minimizing regeneration of invasive cordgrass and possible recolonization by clapper rails. This would be determined in consultation with the U.S. Fish and Wildlife Service.

Marsh areas adjacent to treated areas will also re-surveyed for clapper rails, covering an area equal to or greater than the approximate estimated or known size of clapper rail home ranges in the region. The survey zone would be presumed to include areas within approximately 700 feet of the project site, but may vary with specific habitat configuration. Any relevant information regarding potential rail movements from treated areas to adjacent or neighboring areas obtained during surveys will be reported and mapped. Any rail nest locations detected will be recorded with GPS data and photographed. All post-treatment survey data collected by authorized clapper rail biologists will be reported to the U.S. Fish and Wildlife Service. Re-treatment of areas with positive clapper rail detections will not resume until reported post-treatment data on clapper rail distribution and abundance have been reviewed, consulted, and approved by the U.S. Fish and Wildlife Service.

For presumed unoccupied or unsuitable habitat areas, field supervisors or crews will report any relevant observations regarding changes in potential clapper rail habitats, or clapper rail movements in the vicinity of project areas.

### **8. Annual reporting.**

All survey and monitoring data on clapper rails associated with control activities will be summarized and synthesized in an annual report to the U.S. Fish and Wildlife Service and the California Department of Fish and Game.

